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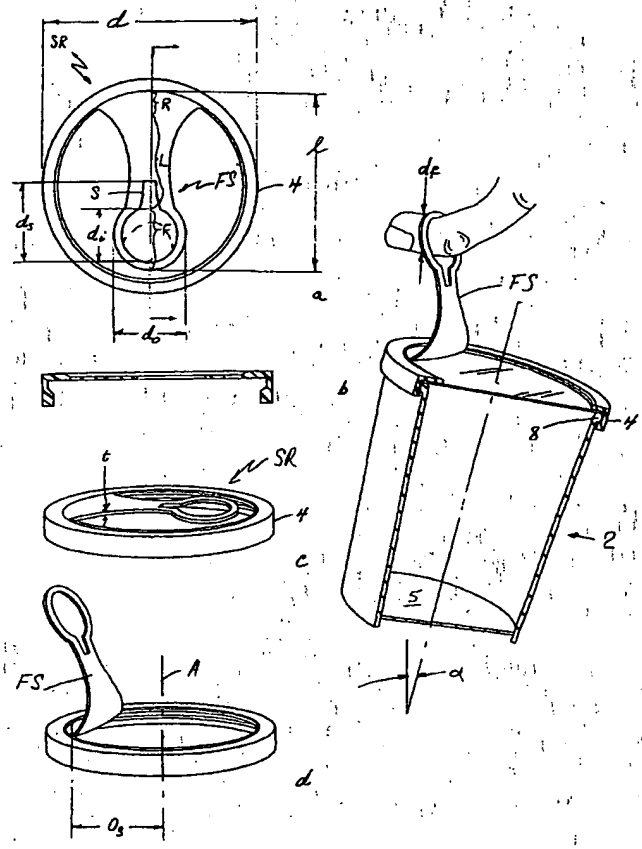

(57) Abstract: A support for a predetermined container (2, 2', 2'', 71, 81, 92, 94) having a rim at its top opening, the support comprising a lid or a supporting ring (4, 4', 70, 80, 90) of synthetic resin constructed to interfit with the rim of the container, wherein a free-ended flexible finger suspender of synthetic resin, (FS, FS_1, FS_2, FS_3, FS_4) is formed integrally with the lid or supporting ring and is deflectable from a formed position to an upstanding position in which it is capable of carrying weight of the container.

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SUSPENDED CONTAINERS

This invention relates to disposable packaging, to improved techniques for carrying products in containers, to pre-packaged products, to take out consumable products, and to arrangements for consumer packaging.

INTRODUCTION TO THE INVENTION

The invention, based on a container supported by a suspending element associated with the rim or removable top of a wide-mouth container provides to manufacturers, stores, restaurants, take-out counters, and customers a new form of packaging, display and means of transport. In many preferred forms the suspending element is so associated that the container, when suspended, hangs by gravity at a substantial angle. In many preferred embodiments the container has flexible walls and a thickened rim. The container may be a molded plastic can, cup or tube having an edge bead, a conventional disposable paper or foam container, a coffee cup or a cup for cereal or soup having a rim bead, or it may be a can (tin) of goods having a metal or plastic top and an outwardly protruding edge bead, etc. In many preferred forms, the lid or supporting ring has a clear central section enabling view of the contents, or of a tamper-evident seal. Particular embodiments of the invention have many other important features and uses.

According to one aspect of the invention a lid for a container, or a support ring associated with the container, has an elongated finger suspender of plastic resin that is molded or otherwise formed integrally with the rim of the lid or the supporting ring.

According to another aspect of the invention, suspending elements of a series of containers are constructed and arranged to for one to be interfit into the opening of another, to enable units to be strung together for transport or display.

According to another aspect of the invention, a single suspending element is located so off-center that the container, when supported by the suspender element, hangs at a marked tilt angle. In preferred embodiments of this feature, the product is hung from an elevated location, e.g. in unused high space in a retail store, and the tilt angle so situates the side of the container that it faces the customer due to the container's tilt. The side of the container is readily noticed and identified by its printing. In another instance, the product is suspended

below eye level, e.g. near the floor, and the tilt angle tilts the top of the container toward the customer for notice and ready reading of its brand and contents.

Another feature of the invention is a finger suspender which involves two finger-engageable openings in series along the suspender element, selectable for use in accordance with the user's preference. This embodiment takes account of the user's other needs for her or his hand, and the size of the container or string of containers being supported. In one embodiment of this aspect, a finger-engageable opening of the suspender is positioned to facilitate application of force to break a seal or bend back a portion of the lid or ring to facilitate its disengagement from the container. Another feature of the invention is the near-lying finger engageable opening per se, constructed to function as a finger suspender and/or as a force-applying aid to the bending and lifting of the lid or ring.

Another feature of the invention is a lifting ring featuring two opposed finger suspender elements, each formed integrally with a suspending ring or lid, arranged so that both can be grasped by one or more fingers to lift the container. In a preferred embodiments, the suspender elements lie in a plane in nested fashion, extending from hinge roots at opposite sides of the rim of the lid or supporting ring.

The container filled with merchandise may be suspended in singles or multiples from a display rack, while, after purchase the container may be supported by its suspender element by a finger leaving the hand free for additional activities, such as carrying a cup of hot coffee, a cold drink, a bag of popcorn, a plate of food, a briefcase, a tennis racket, a paint brush or a bag of groceries or leaving the hand free for holding on to the hand of a child or parent.

The container may be inexpensively constructed in accordance with this invention while providing for a variety of ornamental and distinctive appearances and trade dresses by surfaces that may carry decoration and printing. The walls of the container can be printed to serve as holiday decoration or as a gift presentation. In addition, the shape of the container and its lid, their aspect ratio, configuration and color may be varied, all while remaining within the scope of the present invention.

A replaceable lid or a suspending ring associated with a suspending element according to the invention may be removed from the container for partial consumption of the contents while remaining intact, remaining available to be reattached to the container. Thus

the suspended container can be used to store or transport remaining contents. In the home, the suspended packages may be placed in ordinarily unused space, e.g. in waste space of a cabinet or a refrigerator. Suitable merchandise in the container includes pre-packaged dried soups, cereals, spices, grains, legumes, dried fruits, cookies, crackers, coffee in bean or ground form, nuts, snacks, popcorn, candy, yogurt, ice cream, butter, frozen juice concentrate, cheese dips and condiments, and indeed all of the variety of goods ordinarily presented in cans or tins, including weighty food items, hardware supplies, tennis balls, etc.

Certain embodiments include delicate products ranging from wrapped chocolate truffles to sets of small electric light bulbs. Preferably with insulation features, a finger suspendable container may contain hot or cold contents such as hot soup, hot coffee, cold drinks, ready-to-eat foods, ice cream or yogurt in single servings or larger quantities.

In many cases the invention includes tamper-evident features and vision access to the goods within the container, while in other cases containers are filled on-site by retail establishments or their customers.

Containers according to the invention can be efficiently displayed on single and multi-tier counter racks, tree displays or on a horizontal or vertical lines of hooks that, in effect, can add another display row to space-limited stores, counters or kiosks.

According to a particular aspect of the invention, a disposable package with consumable contents is combined with a flexible finger suspender as described, the container being of greater than 5 cm (2 inches) minimum horizontal dimension at its mouth, the container mouth engaged by a removable lid or suspending ring, the container having an upstanding wall of generally flexible material extending from a bottom to a wide mouth top, the container mouth being about as wide as the horizontal cross-section of the container, the wide mouth defined by a relatively thick rim formation, and the lid or suspending ring having a rim portion extending over and removably engaged with the rim formation of the container, the lid or suspending ring of the container and its attachment, as by snap fit, being constructed to support the container and its contents, the flexible finger suspender being comprised of the material of the rim portion and being formed integrally with it whereby the finger suspender enables the wide mouth container to be suspended by its lid for display and transport by the finger of a hand.

Preferred embodiments of this aspect of the invention have one or more of the following features:

The finger suspender as formed, extends flat across the top of the container and is deflectable to an upright position about a flexible attachment root portion. Preferably, in many cases, the flexible root portion of the suspender is located in the rim region of the removable lid or supporting ring. In many cases the finger suspender has a length exceeding the radius or one half the lateral dimension of the rim of the container, in many preferred embodiments its length is about three fourths of that dimension or more.

The lid or supporting ring includes a rim of resilient plastic resin and the suspending element of the resin is an integral extension from the rim. In certain cases, preferably, the suspending element lies in unstressed condition, substantially in a plane coincident with or parallel to a plane of the rim, preferably within the confining planes of the rim.

In important cases, the suspending element lies inwardly of the rim portion of the lid or supporting ring; for example, the suspending element extends inwardly as a flexible or deflectable integral projection from the rim to a free end which defines an opening sized to receive the finger.

In other cases the suspending element lies outwardly of the rim, as a deflectable integral outward projection from the rim to a free end which defines an opening sized to receive the finger.

According to another aspect of the invention, a combination is provided including a disposable package for consumable contents and a suspending element, the package comprising a container of greater than 5 cm (2 inches) minimum horizontal dimension at its mouth, which is closed at least in part by a removable lid, or engaged by a supporting ring, the container having a wall of upstanding, generally flexible material extending from a bottom to a wide mouth at the top, the mouth being about as wide as the horizontal cross-section of the container, the wide mouth defined by a relatively thick rim formation, and the lid or suspension ring having a rim portion extending over and removably engaged in load transmitting relation with the rim formation of the container, a single suspending element extending from and being formed integrally with the rim region of the lid or supporting ring, the suspending element being located to suspend the package at a tilted orientation.

In many implements the container is of conventional molded plastic resin or resinous foam with integral sidewalls and bottom and paper stock such as drinking cup paper stock, for instance, coffee cup paper stock. In all such instances, the rim formation of the container advantageously comprises an outwardly protruding bead or a rolled bead. It is advantageous in many implementations that the plastic lid or plastic supporting ring be snap-fit over a bead or other rim formation of the container to support the container's weight. In other cases there is a folded rim, as in the case of certain ice cream containers designed for friction fit of the lid telescoped over the container top.

In certain cases, the flexible wall of the container comprises plastic foam, and the rim formation of the container has a thickness of foam greater than lower portions of the container walls.

In many cases, the attachment of the lid to the container includes an outer heat shrunk plastic film band that forms a tamper-evident exterior seal. Preferably, the seal surrounds mating rim portions of the body of the container and its lid or supporting ring to add strength and stability to the connection.

Preferred embodiments of various aspects of the invention feature a finger suspended lid or a supporting ring which has an open or clear section in its center through which the goods or a tamper-evident seal may be viewed. In certain embodiments, the lid comprises a colored or opaque outer rim and a central region of clear plastic. In other embodiments, the lid has a rim region and a central region integrally formed of clear plastic and a second colored or opaque rim member is attached to the clear plastic rim to render the composite rim region colored or opaque.

In certain implementations, the rim member of the lid or of the supporting ring has a depending skirt that is heat-shrunk about the rim region of the container to form an exterior seal.

In other implementations, there is a clear plastic film member and an annular rim member, the clear plastic film member extending across the central portion of the lid to define a viewing window, and having a skirt that depends past, and is heat-sealed in the region of, an upper rim formation of the container.

Various embodiments of the invention are advantageously combined with a display rack on which the package is suspended by its suspending element. The display rack defines

a support rod or hook on which multiple units of the package are displayed hanging at an angle at an elevated position above the head of the consumer, or at a low position, e.g. near the floor.

This invention, including the many detailed features that will be described, has many uses, and despite its simplicity, has not previously been known.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a cut away perspective view of an embodiment of the invention, while Figs. 1a though 1d are, respectively, views in plan, vertical cross-section, perspective as manufactured, and perspective in operable position of the supporting ring of Fig. 1.

Fig. 2 is a perspective view of an embodiment of the invention suspended by a finger of a hand that also holds a cup.

Fig. 3 is a perspective view of a tennis player transporting his racket by a hand, a finger of which suspends two cans of tennis balls according to the invention.

Fig. 4 is a perspective view of a string of three containers similar to that of Fig. 1, the finger suspenders of the containers having been intertwined; while Fig. 4a depicts intertwining action.

Fig. 5 is a perspective view of products suspended at an angle, some products suspended on racks located above the head and other products suspended at lower than eye level.

Fig. 6 depicts a completed product while Figs. 6a, 6b and 6c are sequential views showing the assembly of the product of Fig. 6. Fig. 6d is a vertical cross-section of the container of Fig. 6.

Figs. 7, 8, 9, 10 and 11 are vertical cross-sectional views of further embodiments having sealing features.

Fig. 12 shows a finger-suspended rectangular container, Fig. 12a is a dismantled view of the container, Fig.12b shows the assembled container while Fig. 12c shows a series of the containers hanging from their finger suspenders for display.

Fig. 13 shows a double ringed finger suspender, while Figs. 13a and 13b illustrate use of the shorter finger opening in a lid-bending action.

Fig. 14 illustrates a lid having an integral finger suspender formed by a free-ended integral inward projection from the rim of a snap-on lid.

Fig. 15 is a broken away exploded view and Fig. 15a is a suspended view of a container having a twist lock lid.

Fig. 16 illustrates a lid having an integral finger suspender element formed by a free-ended outward integral projection from the rim of a snap-on lid.

Fig. 17 is a plan view of a novel two-suspending element construction, Fig. 17a illustrates the construction of Fig. 17 for a light load, that leaves the hand free for another function while Fig. 17b illustrates use of the construction for transport of a heavy can.

DESCRIPTION OF PREFERRED EMBODIMENTS

In Figs. 1-1d are shown a suspending ring constructed to be snap-fit over a container 2 that has an outwardly extending bead 8 at its wide mouth.

The suspending ring SR comprises rim 4 of injection molded plastic resin having a circular downwardly extending formation adapted to snap over and engage the circular bead 8 of the container 2 in the usual manner of snap-over lids as used with disposable drinking cups, plastic containers, and cans or tins.

Integrally molded with the rim 4 is finger suspender FS, comprising an inward projection of the plastic resin having an over-all length l, greater than the radius of the mouth of the container 2'. As shown it has a length l greater than 75% of the diameter of the mouth, and an overall length in excess of two inches. The over-all length l of suspender FS is comprised of a short root region R, a long leg portion L and a finger ring portion F. The finger suspender FS is flexible, in this embodiment being of sheet form of constant thickness. The short root region R is constructed to act as the principal load-bearing hinge. This hinge together with the extended length of the flexible suspender enables the suspender to be deflected, as shown, from a planar as-molded position, in which it lies parallel to and within the bounding planes P and P_1 of the molded rim of the support ring, to an upright position when under load as shown in Figs. 1a and 1d.

The hinge location in the vicinity of the rim and the general flexibility of the suspender enables the container to rotate significantly due to significant off-set O_S of the

center of mass of the container from the center of lift of the suspender FS. Accordingly, the container tilts to the angle α, with highly desirable consequences, explained below.

The tilt angle α (degree of cant) may be selected by suitable selection of the width, thickness and length of elongated suspender SF and the physical properties of the chosen plastic resin, in relation to the size and weight of the filled container and the degree of tilt angle α desired. Polyethylene, polypropylene, polystyrene, and in general, thermoplastic resins having a degree of resilience, such as conventionally used to injection mold snap lids are suitable materials.

The finger ring opening F has an inner diameter d_i that exceeds the design dimension d_f of a user's finger, enabling the container to be suspended by the finger as shown in Fig. 1.

The base of the finger ring opening F terminates in slot S, which contributes to defining an overall opening of length d_s that is equal to or greater than the outer diameter d_o of the head of the finger suspender. The purpose of this feature is described later in connection with Figs. 4 and 4a.

Important advantages of the container associated with finger suspender FS of the support ring are illustrated in Fig. 2. Only one finger is used to support a full container of cereal as the user moves from a counter with a hot cup of coffee in the same hand. The relative location of the suspended container of cereal may be selected by the user, by selecting the tilt orientation of the container relative to the finger when initially lifting the container. This enables the container to be carried in the protected position, shown.

Support rings similarly applied to tennis ball cans 2", the rims of which are snapped over the metal outer ring of the can's conventional metal sealing lid, enables two cans of balls to be carried by a finger of the same hand that carries a tennis racket, Fig. 3.

In Fig. 3, the finger supports the rings of the suspenders of both cans. Alternatively, with suitable length of the suspenders of the cans may be intertwined so that only one finger ring needs to be lifted, using the feature now to be described.

Referring to Fig. 4a, the head of one finger suspender FS_1 attached to its container, is turned to register with slot S in the head of the suspender FS_2 mounted on the other container. By grasping the head of the first suspender, FS_1, pulling it through and engaging a finger in its ring, both tennis cans can be supported.

Indeed, as suggested in Fig. 4a, with the flexible suspenders of suitable length relative to the diameter of the containers, an intertwined string of three or more containers may be formed and supported by a single finger.

Note in Fig. 4, how the tilt angle assumed by each container is made use of in enabling the suspended containers to nest compactly for convenience in transport.

Referring to Fig. 5, the tilt angle α achieved by the present invention has important commercial display advantages. One needs to keep in mind that display space of a retail store, for instance, determines the variety and quantity of goods that may be presented. The tilt angle achievable by the off-center suspension described has an important advantage in allowing goods to be presented from high places at an angle that enables side labels to be readily noticed and read. Likewise, goods supported lower than eye level can be tilted by the act of suspension so that the label on the container lid may be readily read and the brand recognized. Thus, the invention represents a contribution to point of purchase displays as well as to the convenience of transport.

We note here that off-center loading of a somewhat elastic snap lids or the like may have appeared to others to be undesirable out of concern that the snap ring would be deformed and likely detach from the container. According to the invention it is found that a wide range of useful weight bearing is achievable before failure, by the feature shown and by selection of the parameters of the substance and configuration of the resilient snap ring as well as the properties of the suspender discussed above. Weight-bearing with a significant safety factor has been found to be readily achievable. With little expense, the strength of the integral finger suspender can be great enough to exceed the disengagement force by a factor of 2, 3 or more, as desired. Thus, the weight of the product can be carried and the suspender can also be used to apply a greater force to remove the rim from the container.

The embodiments of Figs. 1-1d, 6-6d, 14, 15 and 16 may employ a conventional 8-ounce disposable paper beverage cup 2 having a rolled upper bead 8 and a snap suspending ring 4 or snap lid 4' based upon features of a conventional disposable thermoformed snap lid. Such a cup tapers, having, for instance, a minimum diameter of about 4.5 cm (1.75 inches) at its bottom and a maximum diameter of about 6.5 cm (2.5 inches) at its top, the mouth of the cup corresponding to the latter dimension. The ring or lid is of suitable plastic resin, e.g. of

0.5 mm thickness and the cup and rim or lid are cooperatively constructed to be snap-fit together, the rim portion of the ring or lid lying over and engaging outer bead 8 of the container.

The containers of Figs. 1-1d, 6-6d 14, 15 and 16 may be sealed by a segment of cellophane sheet, clear polyester film or the like, that is adhered to the rim 8 of the container described later in relation to Figs. 6-6d.

The lids shown in Figs. 14 and 16 correspond to lids designed for hot beverage, formed of opaque, colored plastic. However, unlike conventional snap lids for beverage cups, the lid 4 of Fig. 16 has a round central opening terminating at edge 11, of diameter, e.g., of 4.25 cm. Inserted into the rim of the lid of Figs. 14 and 16 and bonded in place to the undersurface of annular ridge 10 is a circular disk 7 of clear plastic resin, of diameter slightly smaller than the diameter of ridge 10, e.g. of 6 cm diameter. In each case, the clear sealing sheet segment provides a see-through window in the snap-lid.

As shown in Fig.6a, the paper wall of a cup terminates in a relatively rigid upper bead 8 which defines the circular top rim of the cup. In the embodiments of Figs. 14 and 16 the raised ridge 10 of the lid lies about 1 cm above the plane of the rim of the cup when the two are snapped together. The cup wall 3 is originally manufactured as flat paper stock and is printed with high accuracy in its flat form, to provide decoration, trade dress, notice of ingredients, etc. It is then cut, formed and glued in the usual way for beverage cups, into the truncated conical shape shown. In the usual way, the bottom of the cup is formed of a separate bottom member 5, to which an in-turned margin of the lower part of the side wall 3 is bonded. As is common with beverage cup lids, a series of spaced-apart inward indentations, not shown, are provided in the lower rim of thermoformed lid 4, located to snap over the cup's rim bead 8 to resiliently engage the lower portion of bead 8 to secure the lid to the cup.

One preferred product is the container of Figs. 1, 6, 14, 15 or 16 pre-filled with delicate twist-wrapped chocolate mini-truffles 18 (chocolate shells with flavored soft gnoche centers). These are individually wrapped with metallized polyester wrapping film. As shown in Fig. 6, the free ends of the twisted truffle wrap, while flexible, have a degree of stiffness sufficient to cushion the truffles with each other and the inside walls of the

container. As shown best in Fig. 6a and 6b, inner layer 19 of clear plastic is adhered across the rim of the cup, providing an air seal and a tamper-evident feature.

In certain preferred embodiments, an outer seal band 21, shown in Figs. 8b and 11, is applied across the juncture of the lid or suspending ring and the cup. It serves both to add security and provide a tamper-evident feature. Seal member 21 is an annular preform of heat-shrinkable resin such as polyethylene or acetate, sized to encompass the joint region of the container. After the container is filled, heat is applied to the seal preform 21, causing it to shrink to tightly engage both the rim 4 of the lid, or ring and the wall of the cup 3 below its bead 8. As suggested by the dotted lines in Fig. 6, a tear feature 25 is incorporated in the preform 21 and visibly identified. To gain access to the container, the user first breaks this seal and then lifts off the lid of the container. The tear feature may be of many known kinds, e.g., a vertical row of perforations, with or without a pull tab or pull string.

Referring to Figs. 6a through 6c, the sequence of manufacture of a prepackaged product is illustrated. Cup 2 is gravity-filled with the desired contents, in the example twist-wrapped chocolate mini-truffles, Fig. 6a. The filled container then has a moisture barrier adhesively applied to its outer rim of clear plastic sheet 17, which passes relatively over the cup to provide the tamper-evident film segment 19. To accommodate projection into that space of a circular ridge of the lid or rim when the lid is snap-fit onto the cup the film may be formed with a downward indentation at the rim of the cup, or be yieldable in that region.

Fig. 6c shows the rim 4 of a suspending ring being applied to the filled and sealed cup which, for many products, completes the packaging. However, for the chocolate truffle product of Fig. 6, the seal preform 21 is positioned and exposed to heat H, as from a suitably shaped hot air appliance, which heat-shrinks the film band 21 to the conformation shown in Fig. 6. The band reinforces the interconnection between the rim 4 and cup 2. Such a seal can assure that a container and its contents can be suspended by the finger suspender during handling, even if the contents are heavy.

In certain embodiments, as where the contents of the container are of lightweight, the outer seal 21 may be omitted, while in other embodiments, as where protection of the goods does not require, the internal seal sheet 19 may be omitted.

The user gains access to the contents by rupturing the external seal 21, if present, and by grasping and pulling on the novel finger suspender with a force level considerably

exceeding the weight of the package. The off-center relationship of the suspender to the rim 4 applies bending forces to the ring or lid, as the user firmly grasps and holds the cup steady. This action commences progressive disengagement from the rim bead 8 of the cup; indeed, in the case of a lid forming a hermetic seal, the lid may come off with the sound of a "pop." The user then removes the inner sealing film 19, if present, to gain access to the contents.

In certain preferred embodiments, the tear feature 25 is located on the periphery in alignment with the root hinge of the finger suspender FS. The two are thus cooperatively related, to enable a firm tug on the suspender to break outer seal 21 at its tear or break feature and remove the lid in one motion.

Selectable cost-effective features are combined with the suspender system to achieve the desired degree of sealing for freshness and security while permitting visibility of the product, or protection of the product from light or moisture, as desired.

Figure 6d illustrates that the clear film 19 or, in its place, foil or other opaque cover, can readily be sealed to the mouth of the container before application of the suspending rim by snap-fit over the container bead.

In the embodiment of Fig. 7, a single-piece molded snap lid offers complete closure. The finger suspender FS is molded integrally with the rim at an upper level, while a separated mold cavity parallel with the suspender cavity but spaced below, extends continuously from one side of the rim to the other, to form closure membrane C.

In the embodiment of Fig. 8 a separate closure element C_1 is preformed, inserted into the suspending rim and joined, as by adhesive, to the underside of the rim. As shown, element C_1 is of diameter larger than the diameter of the container such the rim when snapped over the mouth of the container compressed the closure material C_2 between the suspension rim and the rim of the container to form a seal.

In the embodiment of Fig. 9, an inwardly protruding supporting flange formation F is molded on the inside of the skirt of the suspending ring, thus defining a peripheral slot into which a preformed closure disc may be snapped and held secure. Again the dimensions may be selected to cause the closure material C_2 to be compressed when the ring is snapped over the container bead 8.

In the embodiment of Fig. 10, a snap-fit closure 4a of otherwise conventional form defines its own peripheral outer bead B. A suspending ring 4", which may otherwise be of

the construction previously described, has a snap groove sized and arranged to snap-fit over bead B, so that desired closure and suspending functions are achieved by two parts that are snap-fit together. Two station automatic machinery can first snap the closure 4a on the container and then snap the suspending ring 4" on the closure 4a. Alternatively, the ring and closure may be first automatically assembled and the assembly may then be snap-fit to the container.

In the embodiment of Fig. 11, the suspending ring extends over the mouth of the container with friction fit. Depending upon the load within the container and the radial compressive forces between ring and container determined by relative sizing and selection of materials, the engagement may be sufficient to transfer the weight to enable finger suspension for transport or display. For an added degree of security, a heat shrunk security ring 21 as previously described, may be applied.

In the embodiment of Figs. 12-12c, lid 10 and carton 11 are of square or rectangular profile, while having other features similar to those described. This particular embodiment provides for efficient use of hanging space. As illustrated in Fig. 12c, little open space remains between adjacent packages suspended on a rod.

In Fig. 13 is shown a finger suspender SF_1 having two finger openings F_1 and F_2 spaced along the length of the suspender. The outer opening F_2 is employed as previously described.

The inner finger opening F_1 may be used, in accordance with user preference, to more snugly suspend a container relative to a hand, and in some cases to brace it against the lower edge of the hand. The lower opening F_1 is useful in certain instances to aid in lifting a lid as by interaction with the thumb. As shown, force applied by a finger inserted in opening F_1 is used to bend back the portion of the elastic lid to which the suspender is attached while the thumb holds down the center of the lid. In certain instances, only the lower opening is employed as in Figs. 13 or Figs. 13a and b, in which case the outer end of the suspender may be omitted.

Fig. 14 illustrates a preferred embodiment of a container having a lid 4' with a finger suspender FS formed integrally with lid top surface. The suspender FS extends from attached proximal end to a distal end. In its as-formed, relaxed state, it lies generally flat relative to planar top surface of the lid, thus allowing lid stacking and container stacking

advantages. As with previous embodiments, lid 4' is provided with an internal film laminate attached along the undersurface of its rim to provide a seal between the container contents and the external environment. As before, the distal end of suspender SF has a hole for suspension of the container formed by the combination of the lid and cup as illustrated.

In an alternative embodiment Figs. 15 and 15a illustrate a locking arrangement for selectively securing a lid to a cup or other container. The locking arrangement is explained in U.S. Patent 6,056,144, issued May 2, 2000, the entire contents of which are hereby incorporated by reference. Briefly, the lid 80 is equipped with locking formations 90 (only one shown) extending radially inward from lid flange 91. Cup 81 has recesses 92 (only one shown) formed along the bead 93 of its lid for allowing locking formation 90 to pass below bead 93 when lid 80, aligned with cup 81 as shown in Fig. 15, is pressed downwardly onto cup 181'.

Once locking formations 90 are below bead 93, lid 80 is rotated relative to cup 81 so that locking formations 90 are no longer aligned with recesses 92. Formations 90 then provide locking engagement with bead 93 to prevent removal of the lid from the cup. In this configuration, illustrated in Fig.15a, the container, even with relatively heavy contents, can be suspended by finger suspender FS without disengaging the lid from the cup.

Fig. 16 illustrates a preferred embodiment of a container having a lid 70 with an integrally formed finger suspender FS'. The suspender FS_2 extends from attached proximal end 74 to a distal end 76. A hole 78 is provided in distal end 76 to act as a loop for suspension of the container formed by the combination of lid 70 and cup 71 as illustrated.

In its as-formed, relaxed state, suspender SF_2 extends downwardly from lid 70 parallel to lid flange 73. This arrangement allows lid 70 to be stacked with like lids during lid manufacturing, storing, and any necessary shipping. Furthermore, containers having cups 71 and lids 70 filled with product, can be stacked for storage, shipping and handling without substantial interference from suspender SF_2 which lies, in its relaxed condition, parallel to the surface of the cup.

Referring to Fig. 17, for large objects a novel nested arrangement of a pair of finger suspenders FS_3, FS_4 is provided by a novel arrangement in which the center axis A of each elongated suspender is curved, and the centers of the two finger opening lie on a diameter d_1 of the circular top, with the hinge root region of each suspender being off-set d_1 and of

asymmetrical form. The roots of these suspenders are diametrically opposed along diameter d_2 which forms a substantial angle with diameter d_2.

Though upon applying load, the finger opening do not precisely align, still, by being suitably oversized, a common passage is defined by overlapped regions of the openings to admit one or more supporting fingers.

Lifting the two suspenders together cause the somewhat flexible rim of the snap ring to tend to pull into oval form, thus tightening symmetrical portions of the rim of the suspension ring against opposite sides of the container. This action effectively tightens the grip of the suspension ring on the container.

This ring and simple variations of it have the novel capability of conveniently handling large and heretofore unwieldy containers. The containers can be supported by a hand in a manner still enabling the hand to be free for other functions, as illustrated.

Applications of such a suspending rim, that snap fits over the conventional edge bead of a metal can or paper tub, range from carrying a heavy can of shortening or paint, or convenient handling of a tub of popcorn at the movies. Especially where maximum load-carrying capacity is not required, the root region of the suspenders may be harrowed and straightened, for increased flexibility.

Numerous modifications and other embodiments will be apparent to those skilled in the art and are comprehended by the following claims.

WHAT IS CLAIMED IS:

1. A support for a predetermined container (2, 2', 2", 71, 81, 92, 94) having a rim at its top opening, the support comprising a lid or a supporting ring (4, 4', 70, 80, 90) of synthetic resin constructed to interfit with the rim of the container, wherein a free-ended flexible finger suspender of synthetic resin, (FS, FS_1, FS_2, FS_3, FS_4) is formed integrally with the lid or supporting ring and is deflectable from a formed position to an upstanding position in which it is capable of carrying weight of the container.

2. The support of claim 1, wherein the finger suspender is joined to the support by a flexible root (R) that forms a flexible hinge joined to the lid or ring.

3. The support of claim 2, in which said flexible root (R) is wider than the width of a main body of the flexible suspender.

4. The support of any of the foregoing claims, in which the finger suspender is joined to the lid or supporting ring at a location substantially offset from a central axis of the container passing through its center of gravity sufficient to impart a substantial tilt to the container when the container is supported by the finger suspender.

5. The support of any of the foregoing claims, in which the finger suspender is joined to the lid or supporting ring in the vicinity of a rim of the lid or ring.

6. The support of claim 5, in which the lid or supporting ring lies between parallel limiting planes and the finger suspender lies parallel with and along or between said limiting planes.

7. The support of any of the foregoing claims, in which the finger suspender (FS, FS_1, FS_2, FS_3, FS_4) in its as-formed position, lies inwardly of a rim of the lid or supporting ring.

8. The support of any of the foregoing claims, in which the finger suspender (FS_2) in its as-formed position, lies outside of a rim of the lid or supporting ring.

9. The support of any of the foregoing claims, in which a supporting root base (R) of the finger suspender is joined to a rim of the lid or supporting ring.

10. The support of any of the foregoing claims, in which the main body of the finger suspender is of sheet form of substantially constant thickness.

11. The support of any of the foregoing claims, in which the finger suspender has an axis of elongation and comprises at least a flexible root R region of relatively short extent along said axis of elongation and a main body of substantially greater extent along said axis, which terminates at a portion sized to receive a supporting finger.

12. The support of claim 11, in which said main body comprises an elongated leg portion L and a head defining a finger engageable formation F.

13. The support of claim 12, in which said leg portion L of lesser lateral extent than said root portion R and the finger engageable formation F.

14. The support of claim 12 or 13, in which the finger suspender is of sheet form and said finger engageable formation comprises an opening in the distal end of said suspender sized to receive a finger.

15. The support of any of the foregoing claims, in which the finger suspender defines at least two finger engageable formations (F_1, F_2) a first of said formations being spaced closer to the base root of the suspender than a second of said formations.

16. The support of any of the foregoing claims comprising a single finger suspender.

17. The support of any of the foregoing claims comprising two flexible finger suspenders the ends of which have a range of movement that enables them to be engaged and supported together by a finger.

18. The support of any of the foregoing claims, in which said finger suspender or suspenders are at least two inches long from and including a root region (R) and a finger engageable region (F).

19. The support of any of the foregoing claims, in which the finger engageable suspender is at least as long as half of the minimum transverse dimension of the mouth of said container.

20. The support of any of the foregoing claims, wherein a finger engageable portion (F_1) of the finger suspender lies close to the base root of the suspender.

21. The support of claim 20, in which said suspender is constructed and arranged to enable bending force to be applied to said suspender to distort and assist in removal of the lid or supporting ring from the container.

22. The support of any of the foregoing claims, in which the lid or supporting ring has a snap fit relationship to the mouth of the container.

23. The support of claim 22 in which the lid or support is in snap fit relation over an outer bead at the mouth of said container.

24. The support of any of the claims 1-21 in which the lid or supporting ring is in snap fit relation to a cover which in turn is snap fit to said container.

25. The support of any of the claims 1-21 in which the lid or support ring has a friction fit with a rim of the container.

26. The support of any of the claims 1-21 in which the lid or support ring has a locking engagement with the rim of the container.

27. The support of any of the claims 1-10 comprising a pair of finger suspenders formed within a rim of the lid or supporting ring, the axes of the suspenders being curved, the finger engageable formations of the suspender being aligned on a first diameter (d) and root bases of said suspenders lying on a second diameter d_2 that forms a substantial angle with the first diameter d_1.

28. The support of any of the foregoing claims adapted to be interfit with another support of like construction, each suspender having a head defining an opening sized to receive a finger, the head of one of said suspenders constructed to be threaded through the opening of the other of said suspenders to enable containers carrying said supports to be strung together.

29. The support of claim 28, in which the heads have holes sized to receive a finger and including the head, which includes a slot that provides an enlarged opening in one orientation sized to pass the aligned head of another such suspender.

30. In combination:

a container of greater than two inch minimum horizontal dimension at its mouth which is closed at least in part by a removable lid or a supporting ring, the container having an upstanding wall, extending from a bottom to a wide mouth at the top of the container, the mouth being about as wide as the maximum horizontal cross-section of the container, the wide mouth defined by a relatively thick rim formation, and the lid or supporting ring having a rim portion extending over and removably engaged with the rim formation to form at least part of an attachment of the lid or supporting ring to the container, said lid or supporting ring of the container and its attachment being constructed to support the container and its contents; and

a flexible suspender extending from the lid or supporting ring and arranged to be engaged by a support element such as a rod or hook of a product display, the suspender

having a length of about 2 inches or more, such that when engaged by said support element, the container having a tilt angle.

31. The combination of claim 30 comprising a pair of opposed flexible suspenders of about 2 inches or more in length formed integrally with the lid or supporting ring and constructed to be simultaneously to support the container.

32. The combination of claim 30 or 31 in which the lid or supporting ring is constructed to be snap fit to the container.

33. The support of any of the foregoing claims having an opening in its center region for viewing the contents of the container.

34. The support of claim 33 in which a clear plastic film or sheet closes the container or forms a seal with a rim of the lid or ring.

35. The support of any of the foregoing claims including a heat shrunk band of plastic engaged aobut the exterior of the joint between the lid or supporting ring and the container.

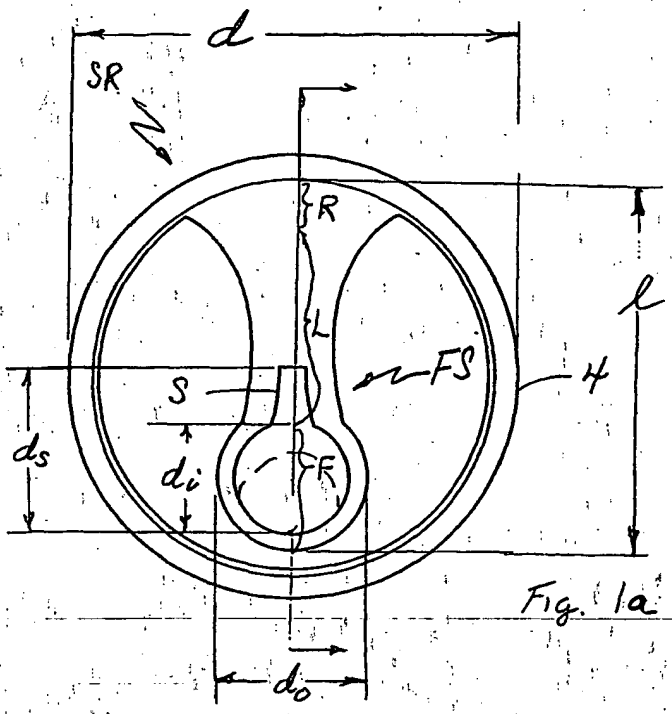


Fig. 1a

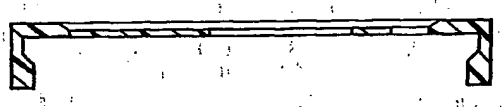


Fig. 1b

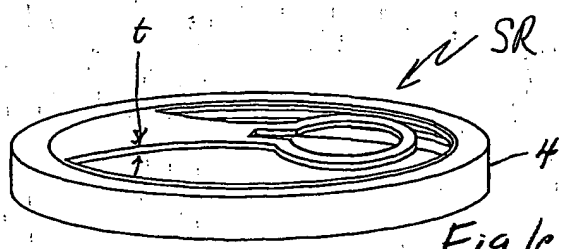


Fig 1c

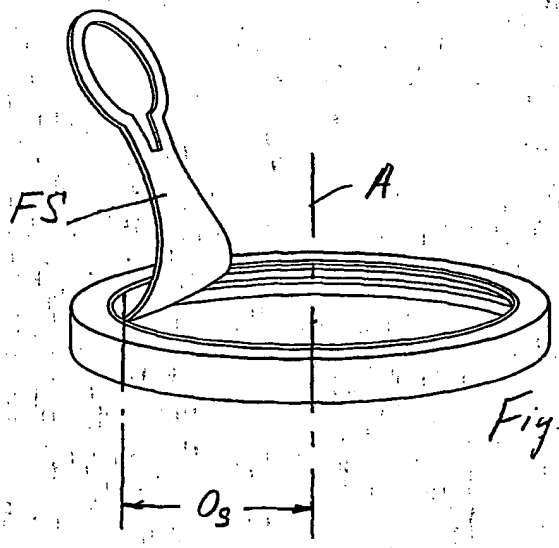


Fig. 1d

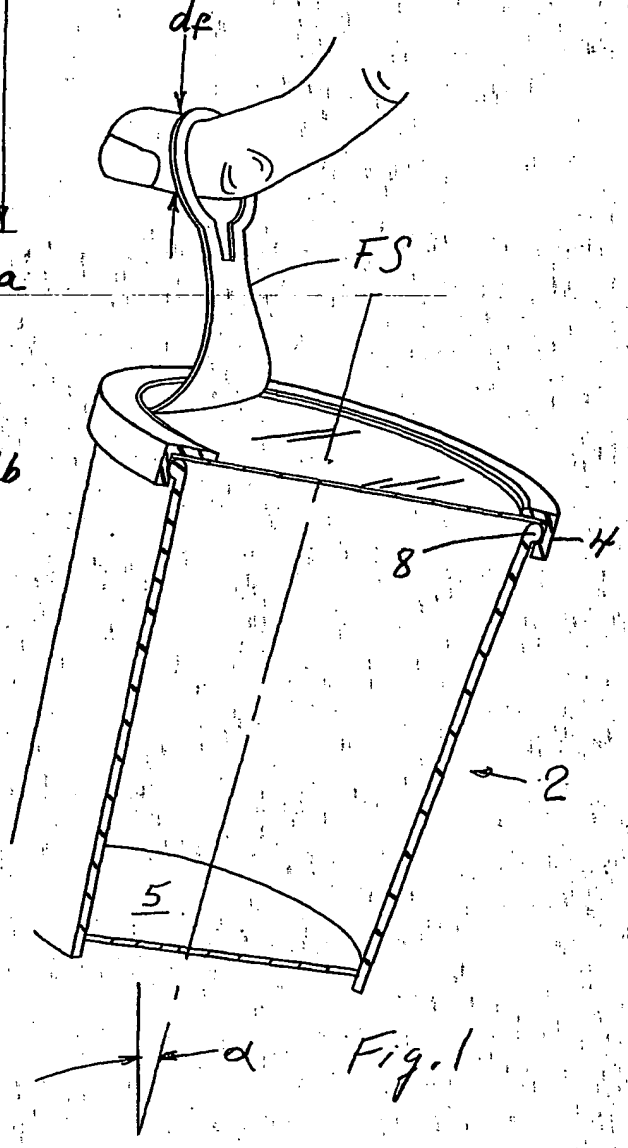


Fig. 1

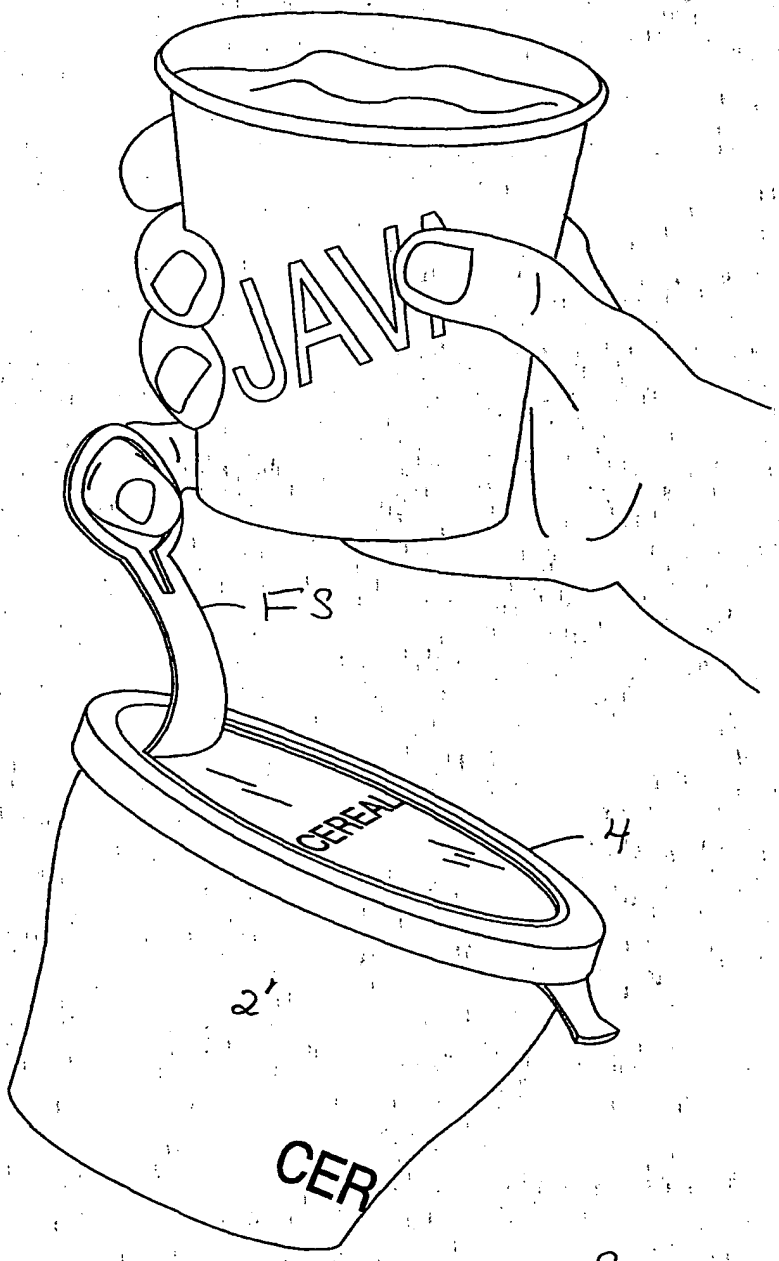


Fig. 2

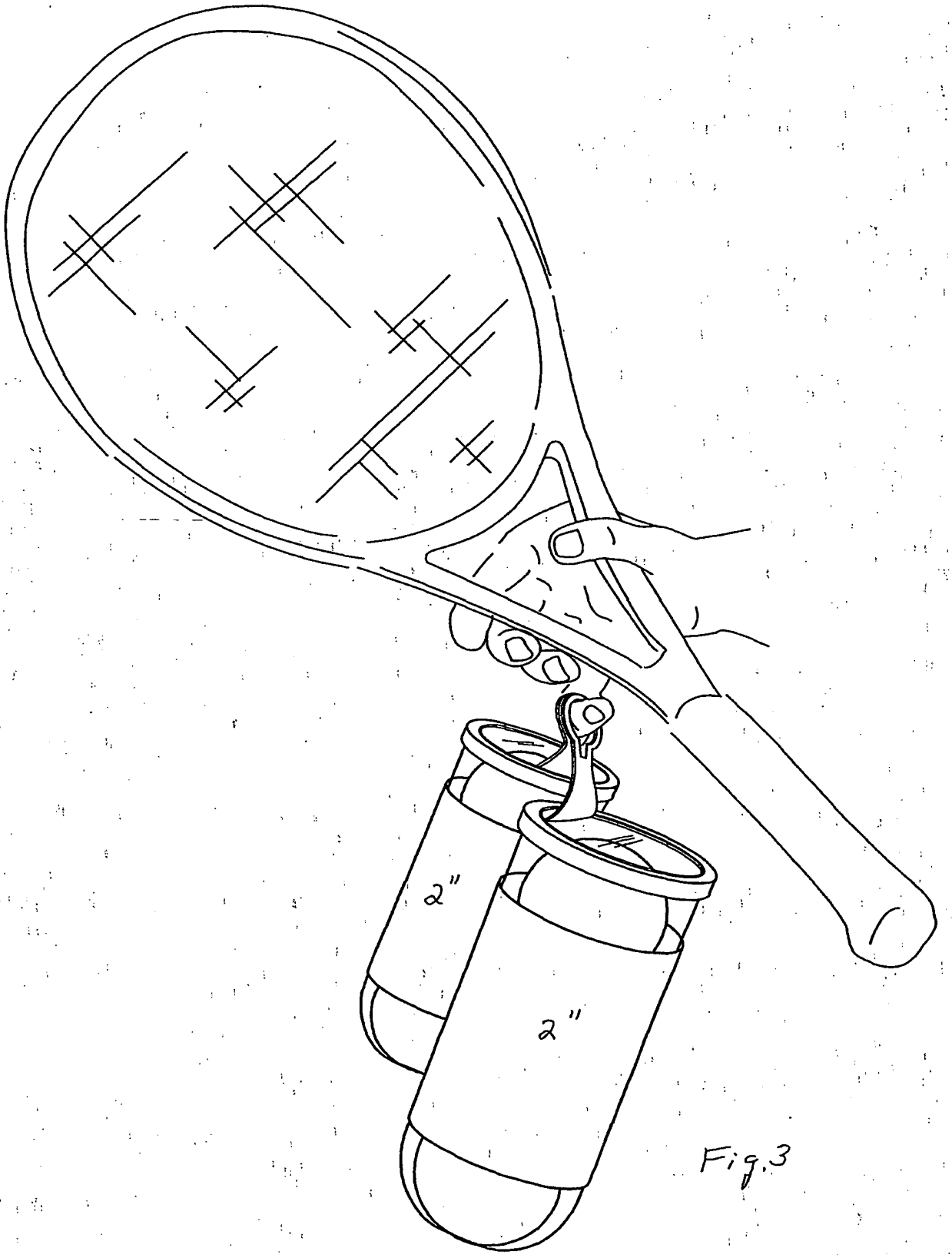


Fig.3

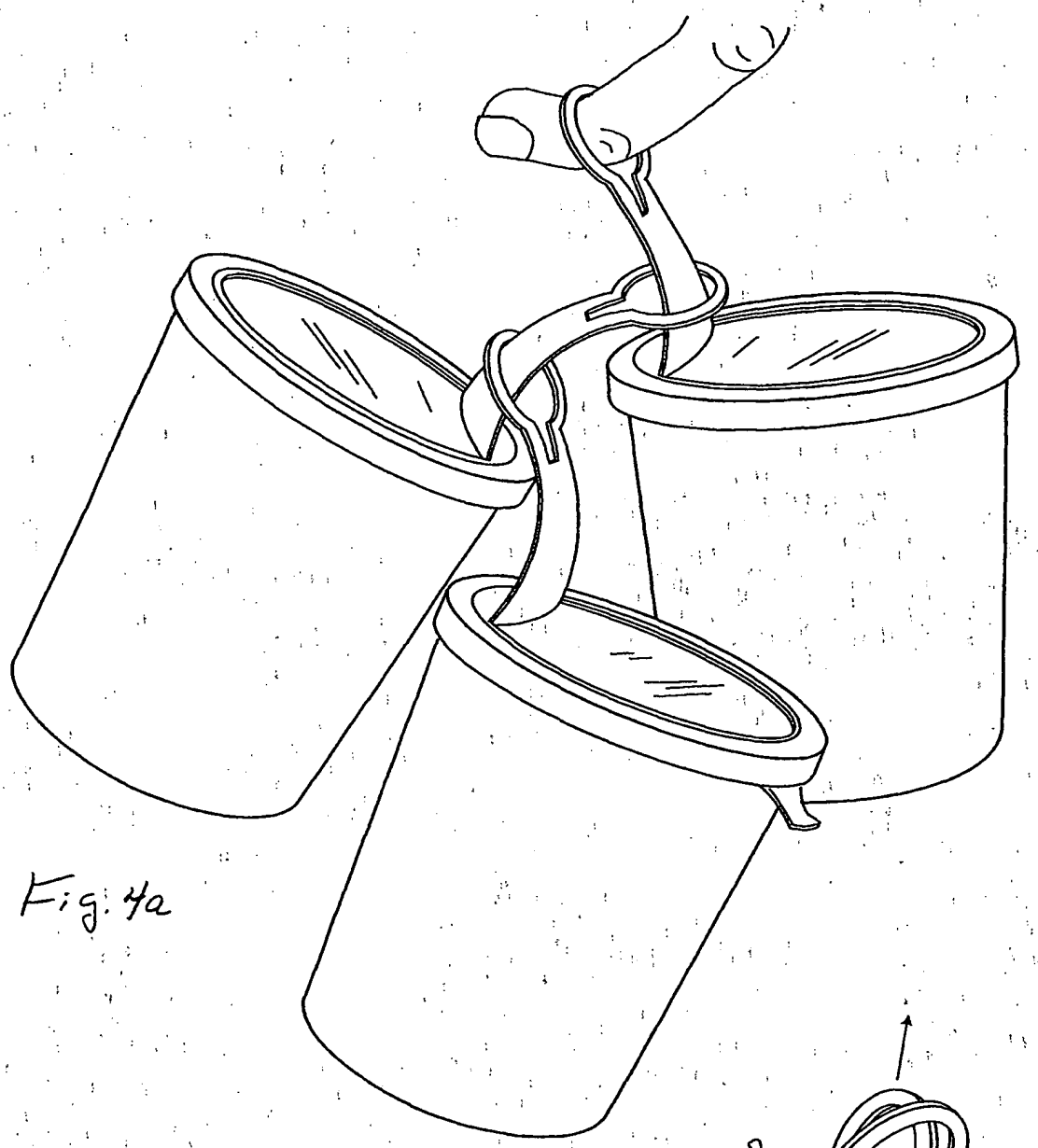


Fig. 4a

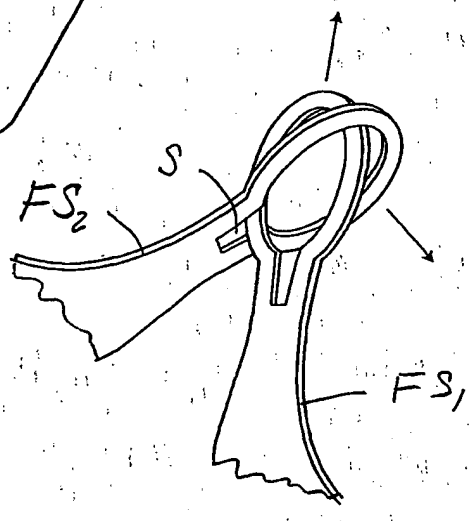


Fig. 4

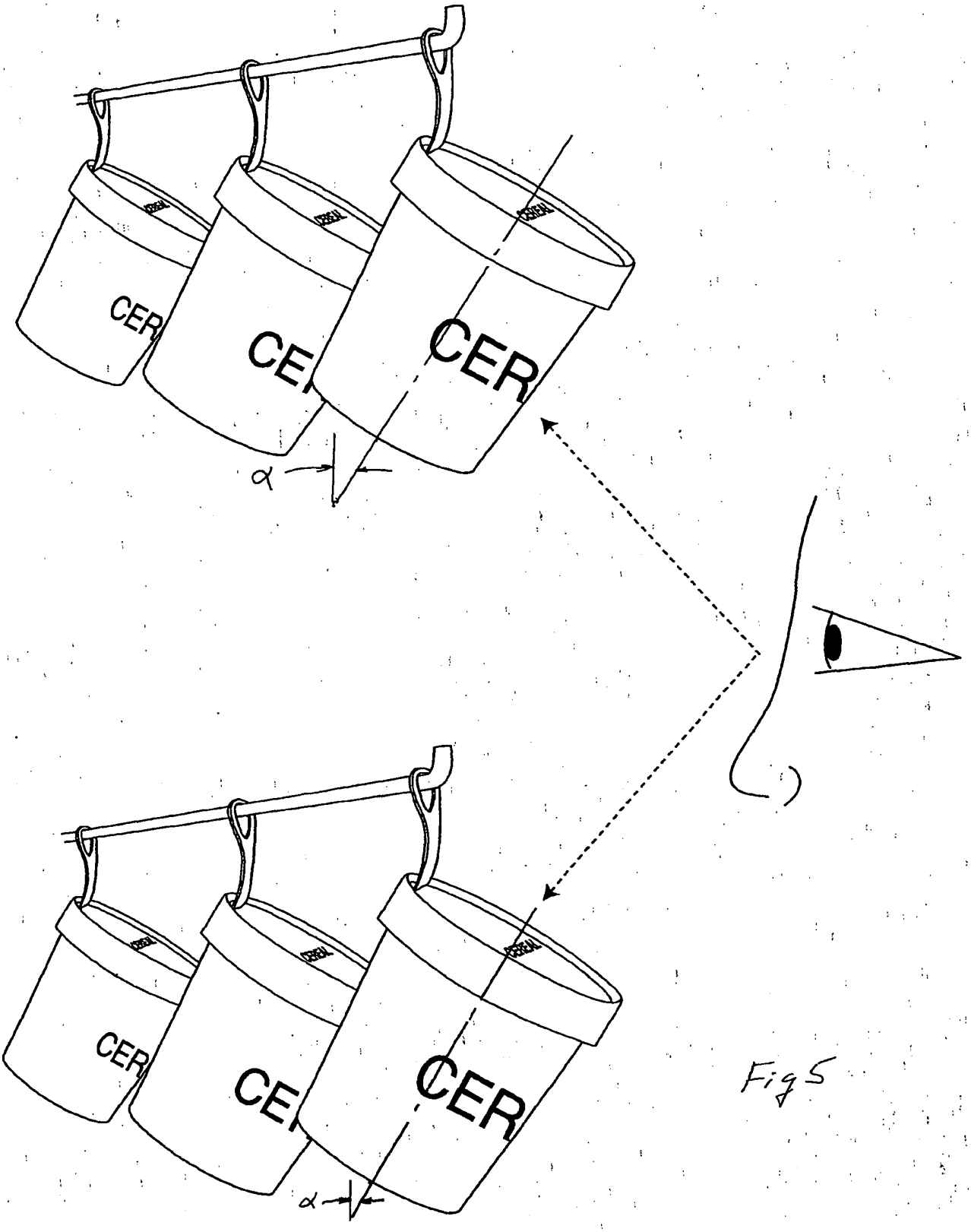


Fig 5

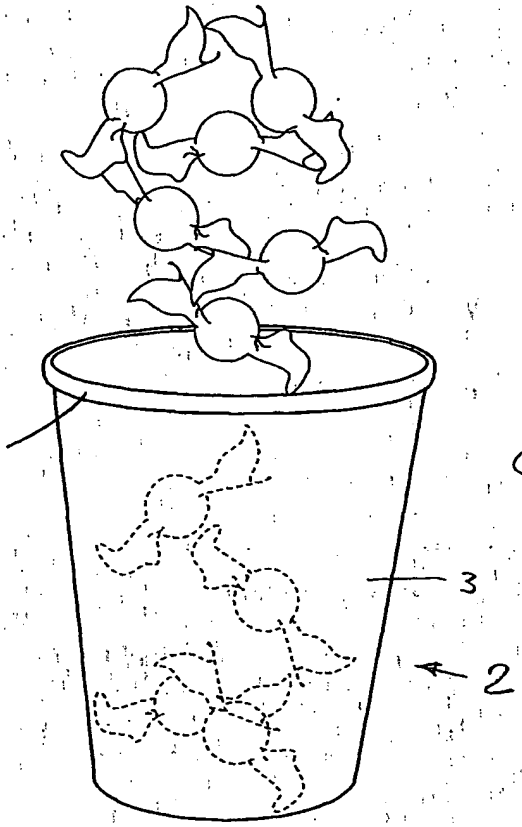


Fig. 6a

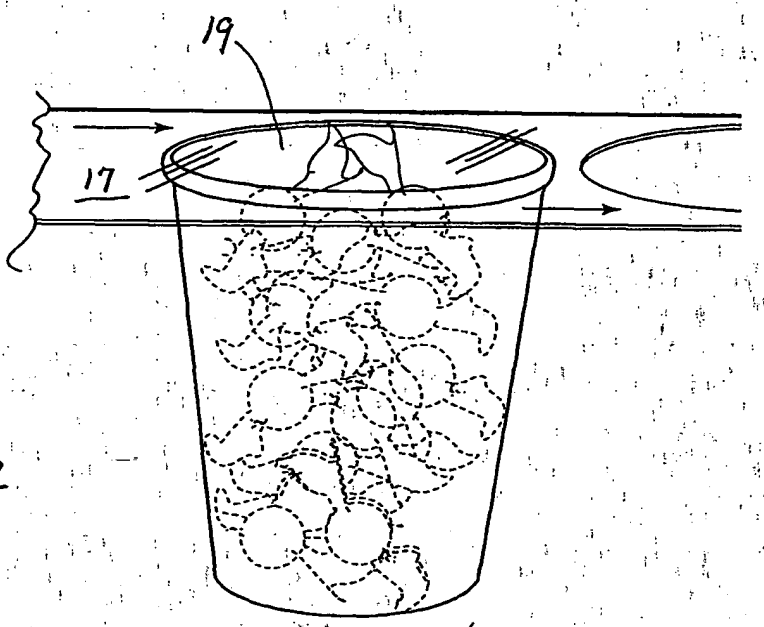
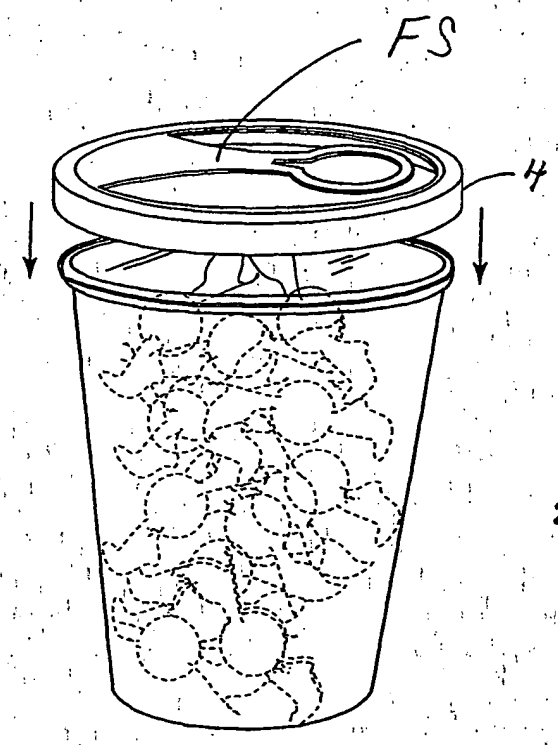
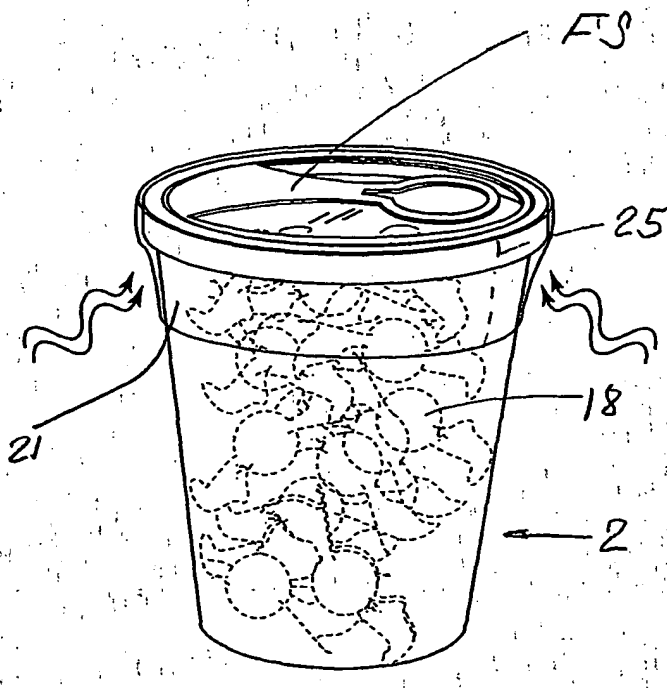


Fig. 6b





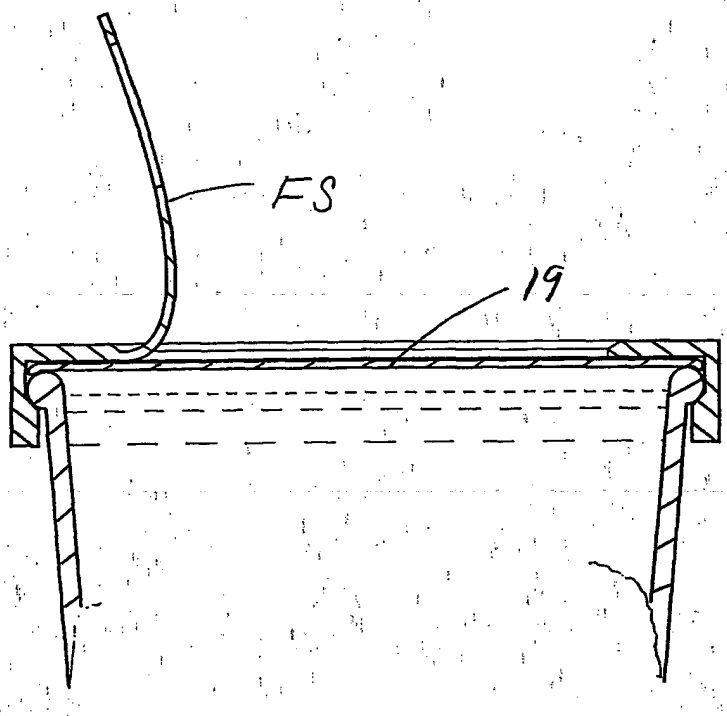


Fig. 6d

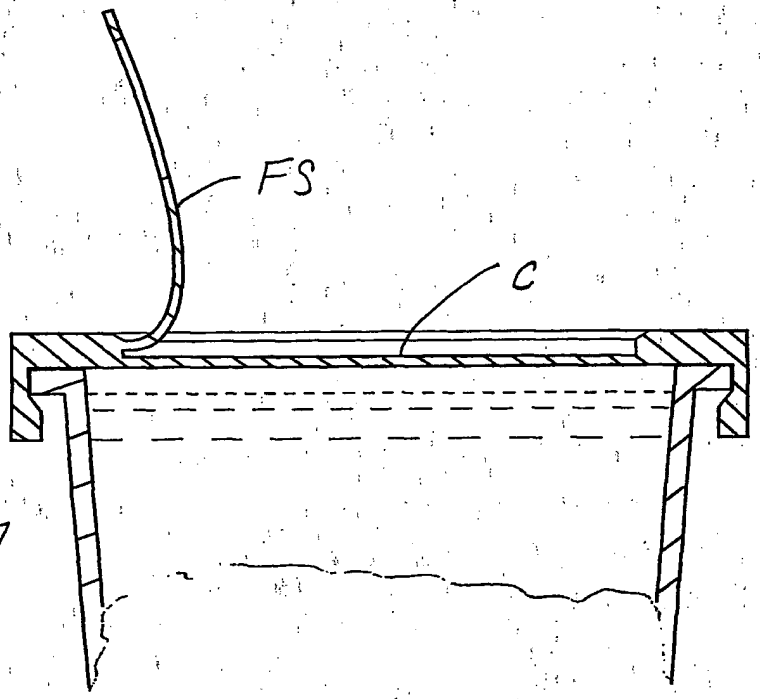


Fig. 7

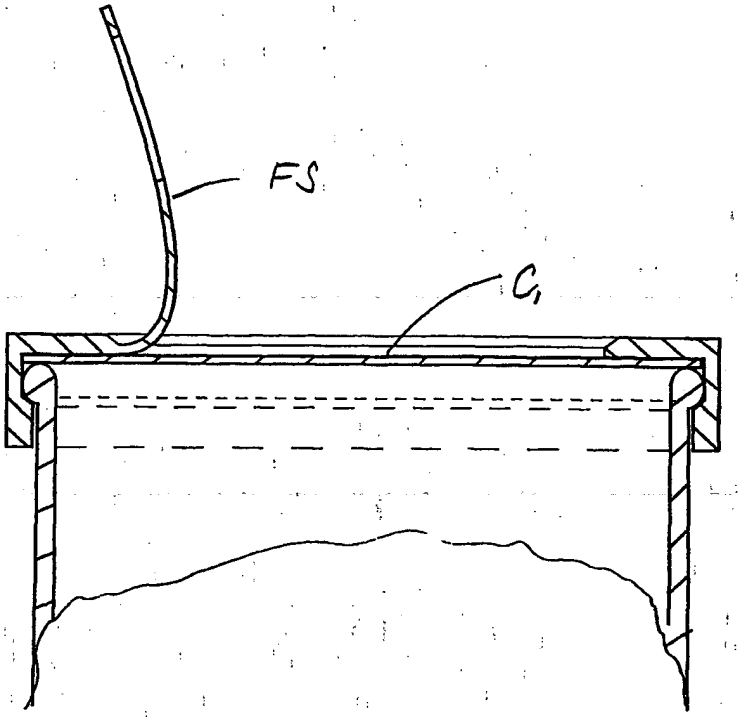


Fig. 8

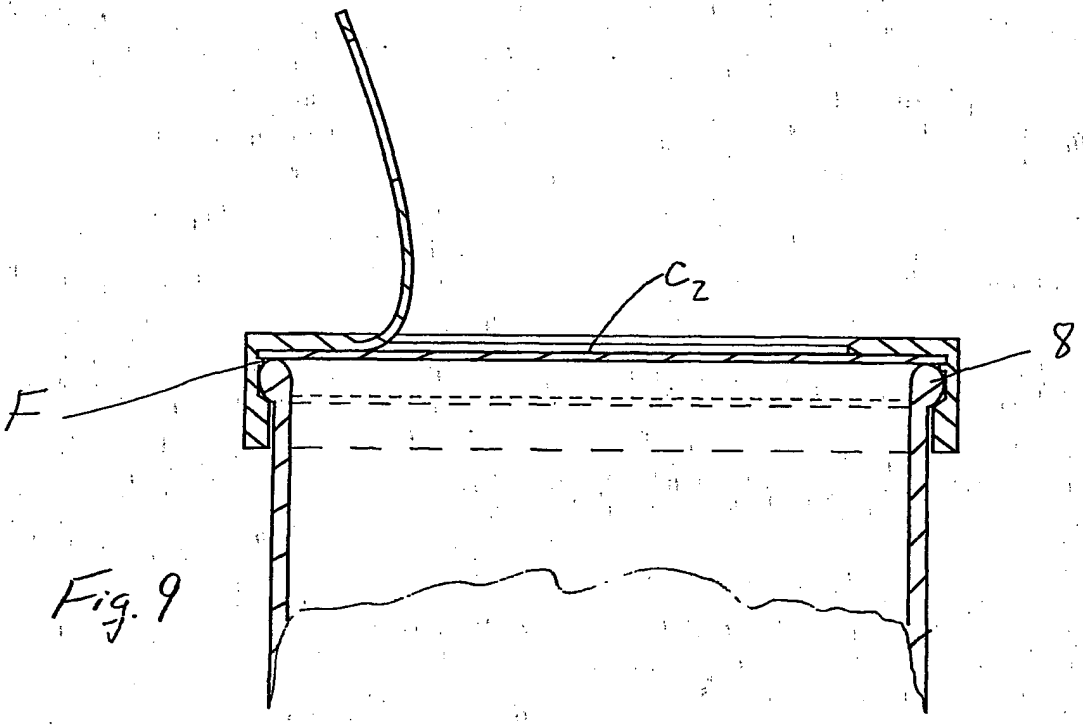


Fig. 9

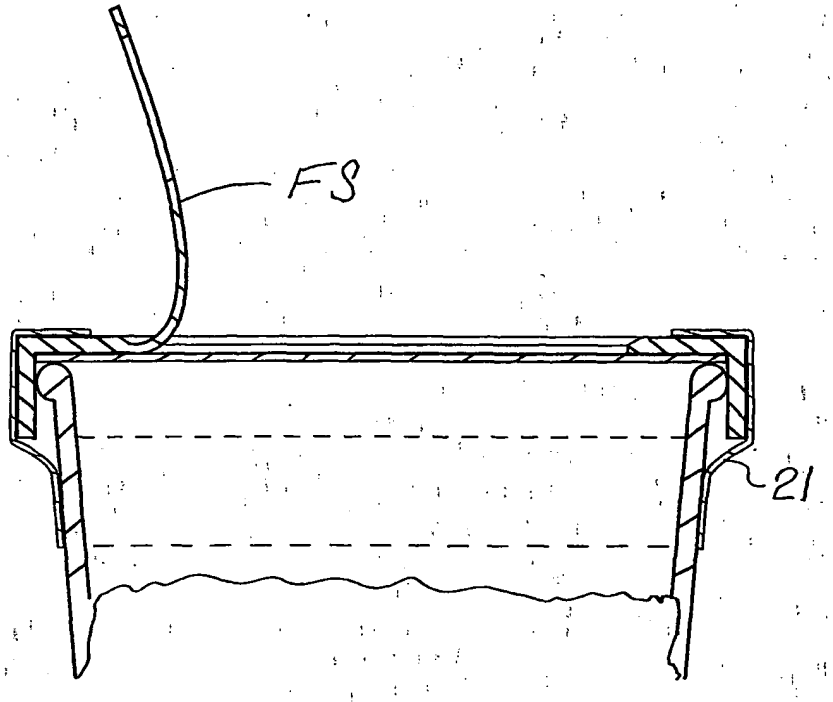


Fig. 11

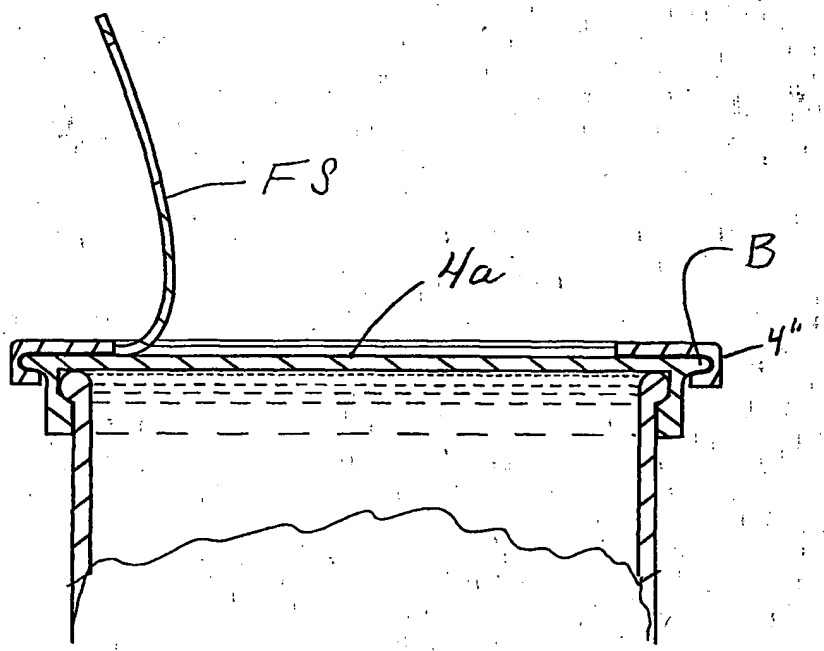


Fig. 10

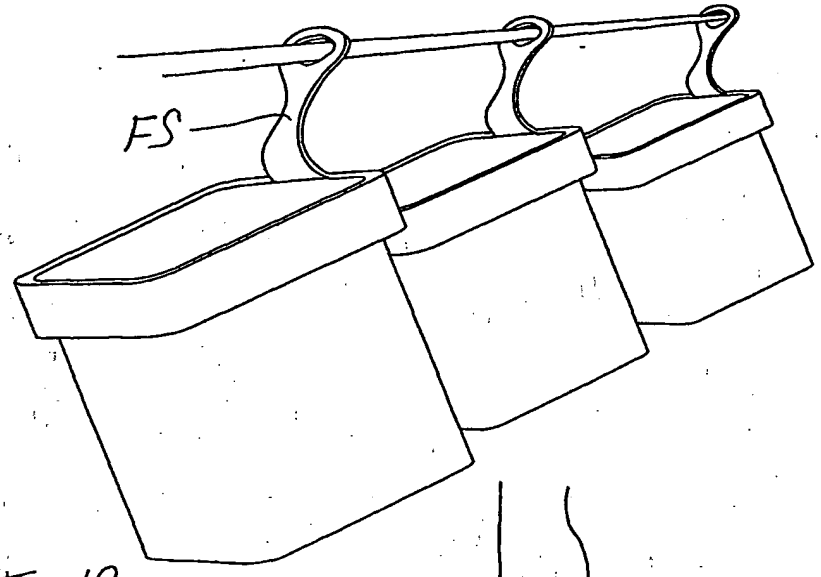


Fig. 12c

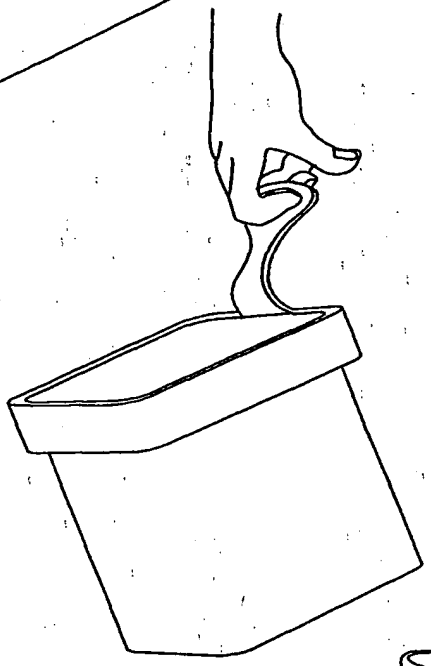


Fig. 12

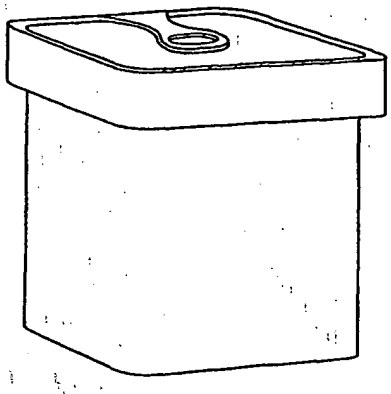


Fig. 12b

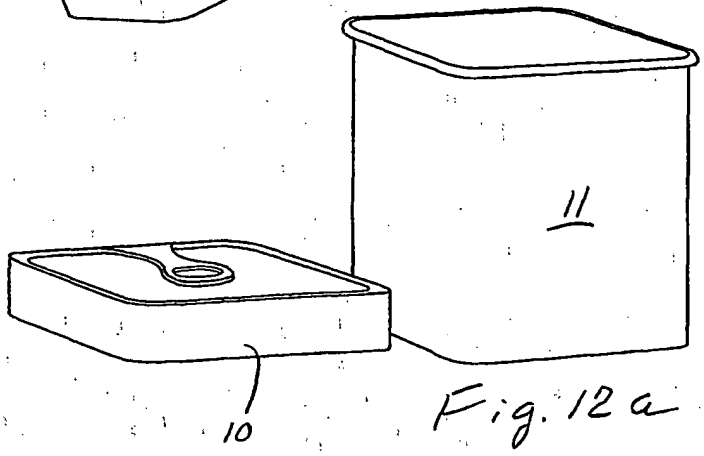


Fig. 12a

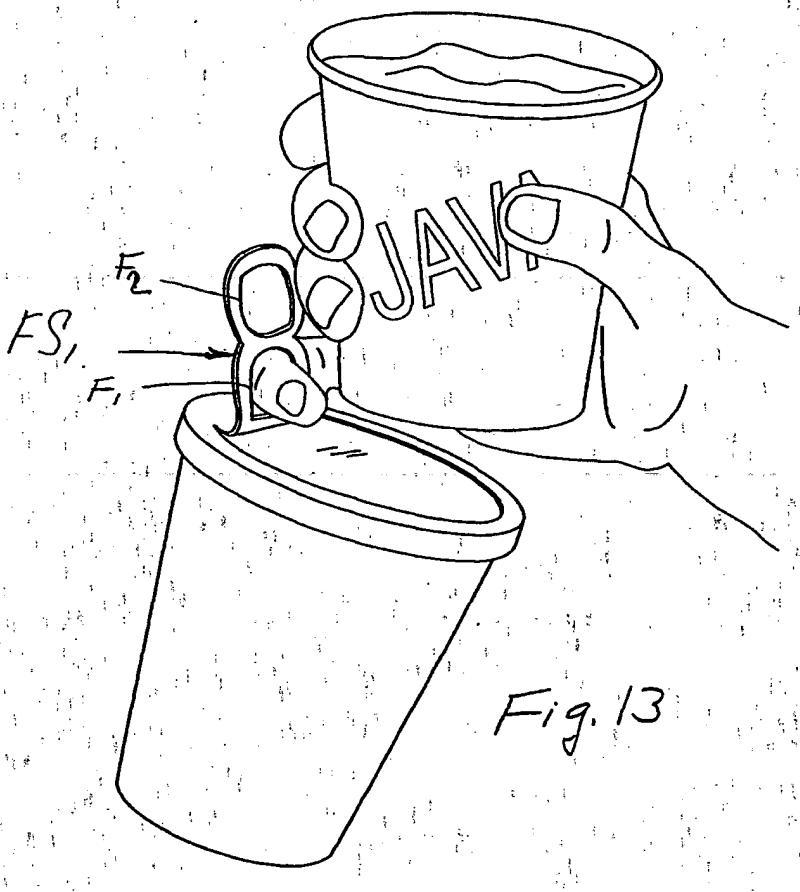


Fig. 13

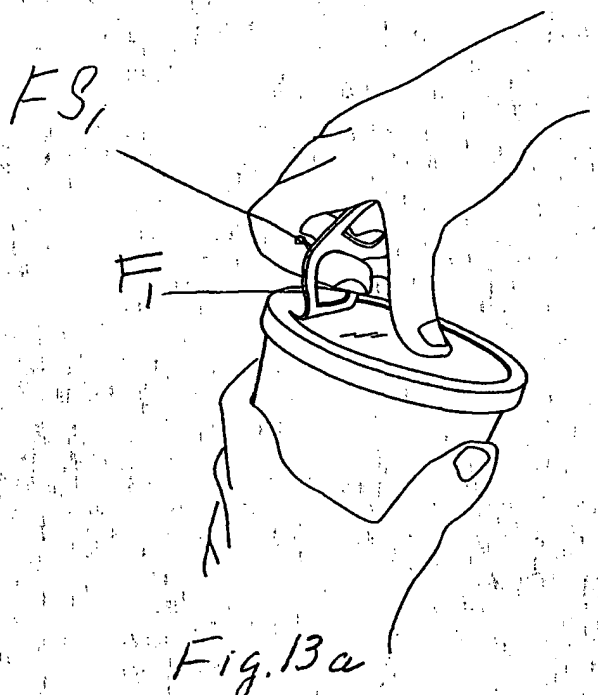


Fig. 13a

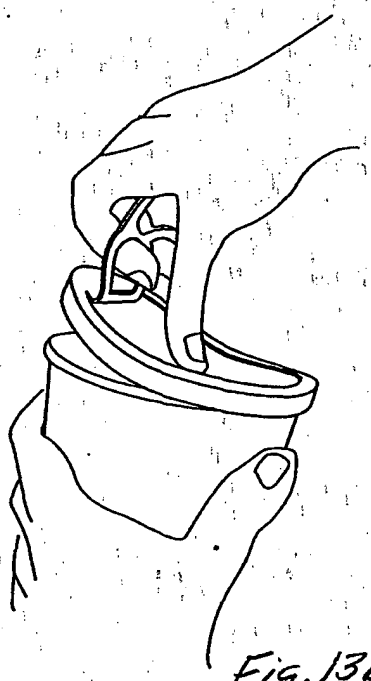


Fig. 13b

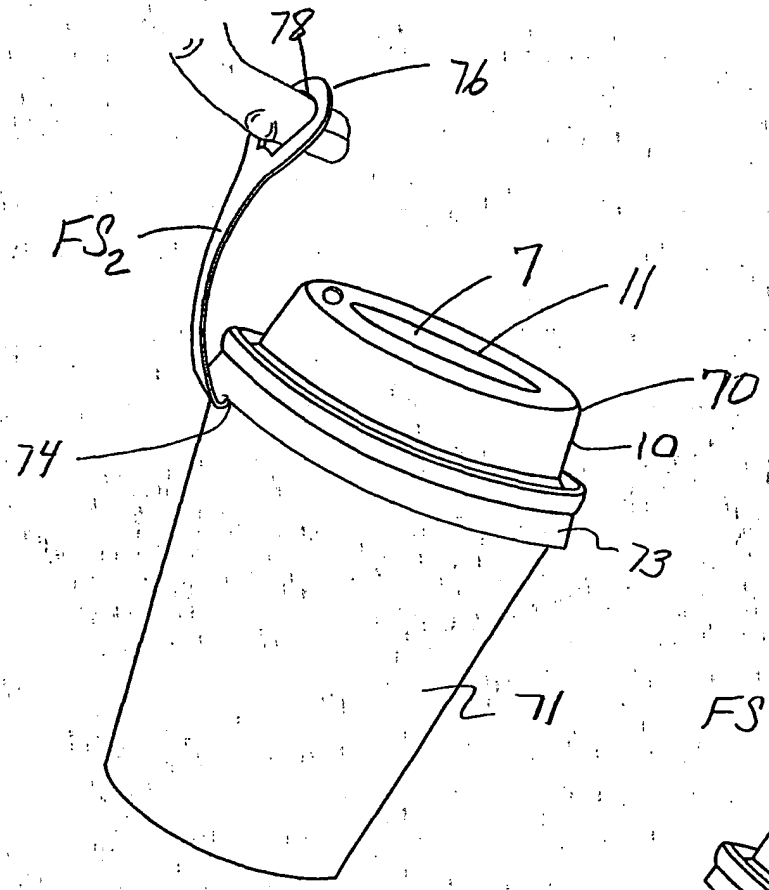


Fig. 16

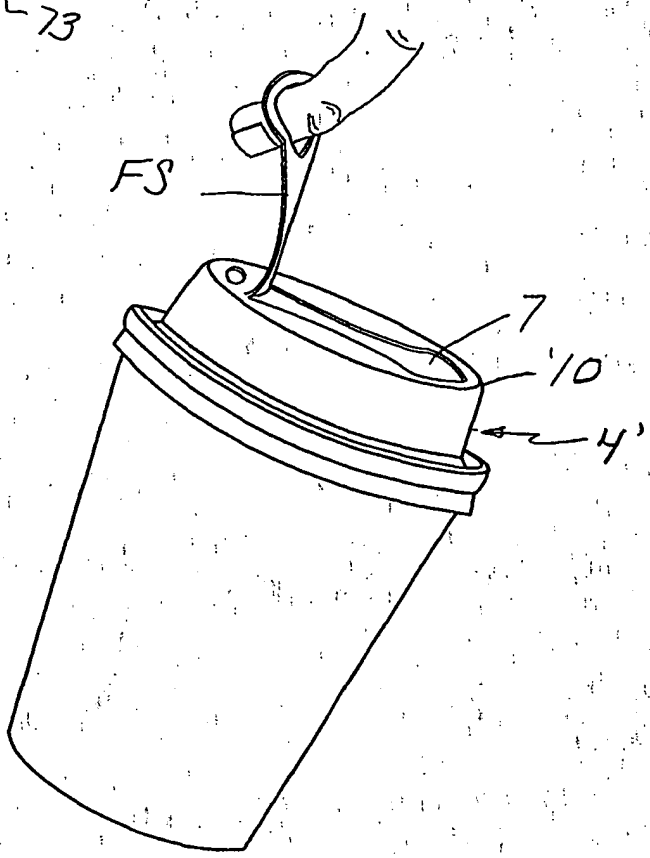


Fig. 14

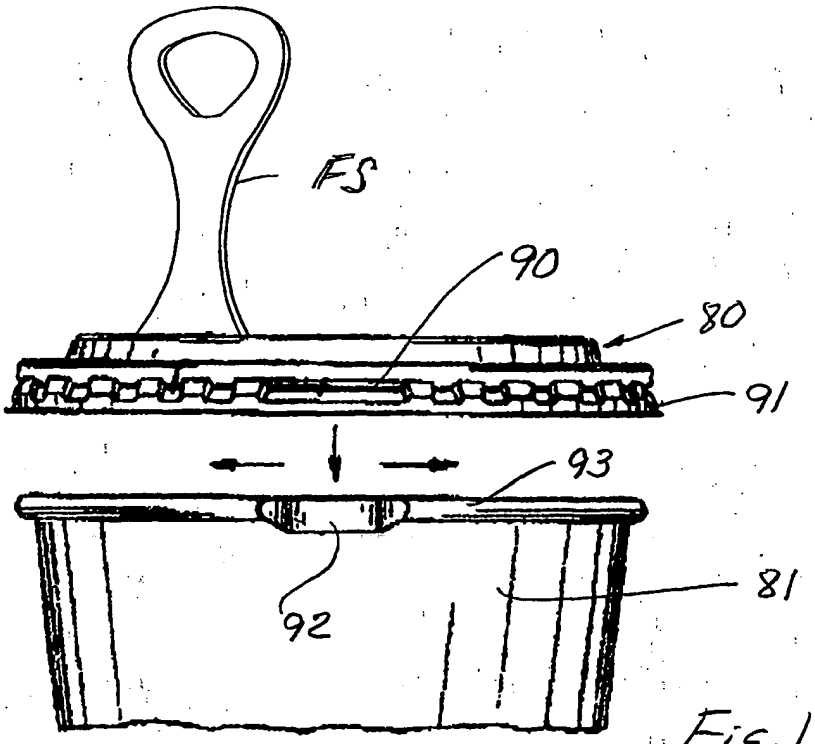


Fig. 15

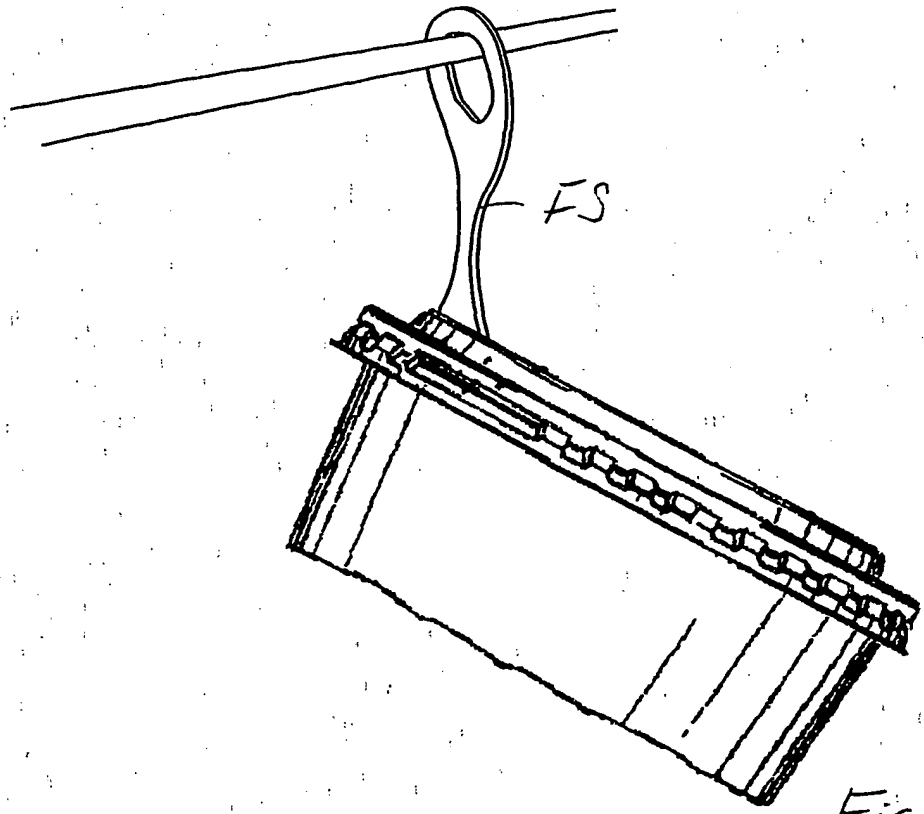


Fig. 15a

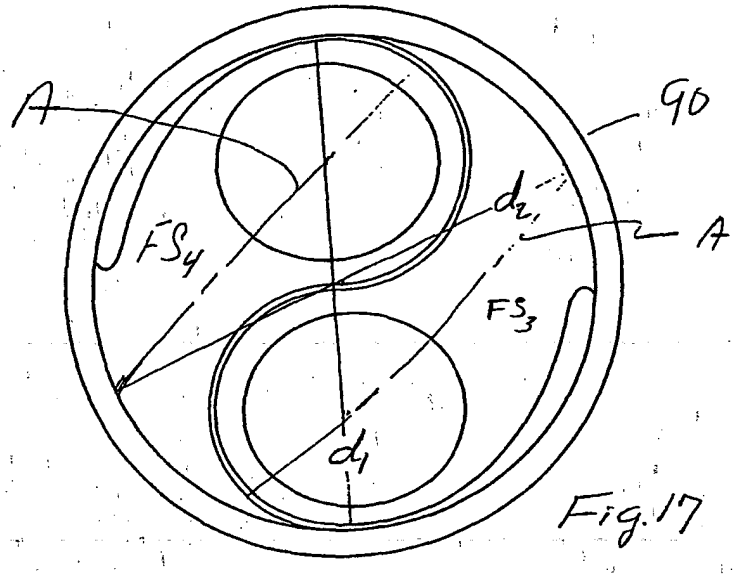


Fig. 17

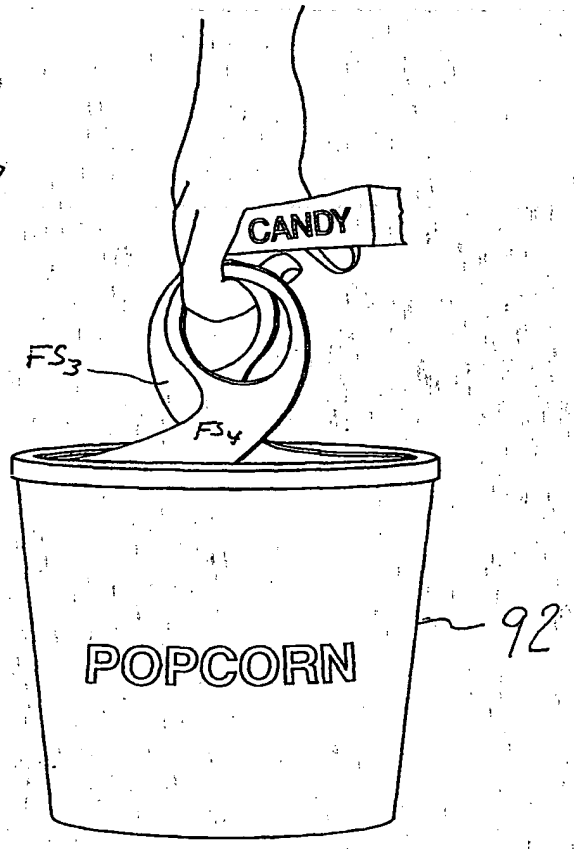


Fig. 17a

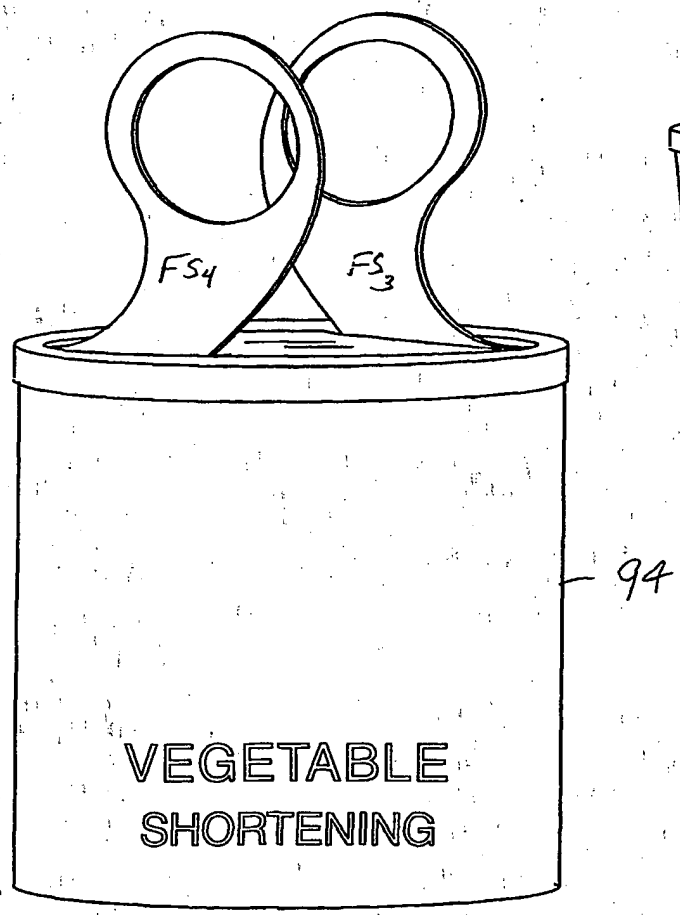


Fig. 17b

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/01112

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65D51/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 297 13 186 U (ALPLA) 3 December 1998 (1998-12-03) the whole document	1-4,7, 11-13, 16,18, 19,22, 23,30,32
A	WO 00 69736 A (THE GREEN HAT CO.) 23 November 2000 (2000-11-23) abstract; figures	1,2,4,5, 10-15, 17-19, 30,31
A	FR 2 698 529 A (CANNON RUBBER) 3 June 1994 (1994-06-03) page 5, line 22 -page 6, line 5; figures 13,14	1,30

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
23 April 2002	06/05/2002

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Gino, C

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Int[redacted]tional Application No
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